

What is claimed is:

### **CLAIMS**

1. A method of rejecting a radio frequency (RF) interfering signal introduced into an information signal, comprising the steps of:

- a) receiving an RF signal having an information component and an interfering signal component having a varying characteristic frequency;
- b) delaying the RF signal by a reference delay time that is equal to a predetermined number of periods of the characteristic frequency to form a delayed RF signal;
- c) processing the RF signal and the delayed RF signal to form a processed reference RF signal in which the information component is substantial and the interfering signal component is negligible;
- d) determining the amplitude of the interfering signal component of the processed reference RF signal; and
- e) varying the delay of the RF signal as the characteristic frequency of the interfering signal component changes in order to maintain the interfering signal component of the processed reference RF signal at a minimum level.

2. The method according to claim 1 wherein the delaying step (b) further comprises simultaneously providing (i) a second delayed RF signal that is delayed, with respect to the RF signal, by an amount of time that is less than the reference delay time, and (ii) a third delayed RF signal that is delayed, with respect to the RF signal, by an amount of time that is greater than the reference delay time.

3. The method according to claim 3 wherein processing step (c) further comprises the steps of:

processing the second delayed RF signal with the received RF signal to provide a second processed signal; and

processing the third delayed RF signal with the received RF signal to provide a third processed signal.

4. The method according to claim 3 wherein varying step (e) comprising the steps of:

determining the amplitude of the interfering signal component of the second processed signal;

determining the amplitude of the interfering signal component of the third processed signal;

comparing the amplitude of the interfering signal component of the reference processed RF signal with the interfering signal components of the second and third processed signals;

maintaining the current reference delay time if the amplitude of the interfering signal component of the referenced processed RF signal is relatively lower than the amplitudes of the interfering signal components of both the second and third processed signals;

decreasing the reference delay time if the amplitude of the interfering signal component of the second processed signal is relatively lower than the amplitude of the interfering signal components of both the referenced processed RF signal and the third processed signal; and

increasing the reference time delay if the amplitude of the interfering signal component of the third processed signal is relatively lower than the amplitude of the interfering signal components of both the referenced processed RF signal and the second processed

signal.

5. The method according to claim 1 wherein determining step (d) comprises the step of detecting the amplitude of the interfering signal component of the reference processed RF signal.

5

6. The method as defined in claim 4 wherein the step of determining the amplitude of the interfering signal component of the second processed signal comprises the step of detecting the amplitude of the interfering signal component of the second processed signal.

7. The method according to claim 4 wherein the step of determining the amplitude of the interfering signal component of the third processed signal comprises the step of detecting the amplitude of the interfering signal component of the third processed signal.

8. The method according to claim 3 wherein prior to varying step (e), the method further comprises the step of filtering the reference processed RF signal, and the second and third processed signals to remove the information component.

9. The method according to claim 1 wherein processing step (c) comprises the step of subtracting the delayed RF signal from the received RF signal.

20

10. The method according to claim 3 wherein the step of processing the second delayed RF signal with the received RF signal comprises the step of subtracting the second delayed RF signal from the received RF signal.

11. The method according to claim 3 wherein the step of processing the third delayed RF signal with the received RF signal comprises the step of subtracting the third delayed RF signal from the received RF signal.

5

12. The method according to claim 3 further comprising the step filtering the reference RF signal and the second and third processed signals to remove the information component.

13. The method according to claim 12 wherein the filtering step comprises the step of inputting the processed reference RF signal, the second and third processed signals into respective band pass filters, each filter having a pass band and a center frequency, the varying step (e) further comprising varying the center frequency of the pass bands of the filters to match the characteristic frequency of the interfering signal component.

14. An apparatus for rejecting an interfering signal introduced into an information signal, comprising:

an RF signal input interface for receiving an RF signal having an information component and an interfering signal component having a varying characteristic frequency;

means for delaying the RF signal by a reference delay time that is equal to a predetermined number of periods of the characteristic frequency to form a delayed RF signal;

means for processing the RF signal and the delayed RF signal to form a processed reference RF signal in which the information component is substantial and the interfering signal component is negligible;

means for determining the amplitude of the interfering signal component of the processed reference RF signal; and

means for varying the delay of the RF signal as the characteristic frequency of the interfering signal component changes in order to maintain the interfering signal component of the processed reference RF signal at a minimum level.

15. The apparatus according to claim 14 wherein the delaying means further comprises means for simultaneously providing (i) a second delayed RF signal that is delayed, with respect to the RF signal, by an amount of time that is less than the reference delay time, (ii) a third delayed RF signal that is delayed, with respect to the RF signal, by an amount of time that is greater than the reference delay time.

16. The apparatus according to claim 15 further comprising:

a first means for processing the second delayed RF signal with the received RF signal to provide a second processed signal; and

a second means for processing the third delayed RF signal with the received RF signal to provide a third RF signal.

17. The apparatus according to claim 16 further comprising:

a first means for determining the amplitude of the interfering signal component of the second processed signal;

a second means for determining the amplitude of the interfering signal component of the third processed signal;

comparing the amplitude of the interfering signal component of the reference processed RF signal with the interfering signal components of the second and third processed signals;

means for maintaining the current reference delay time if the amplitude of the interfering signal component of the referenced processed RF signal is relatively lower than the amplitudes of the interfering signal components of both the second and third processed signals;

means for decreasing the reference delay time if the amplitude of the interfering signal component of the second processed signal is relatively lower than the amplitude of the interfering signal components of both the referenced processed RF signal and the third processed signal; and

means for increasing the reference time delay if the amplitude of the interfering signal component of the third processed signal is relatively lower than the amplitude of the interfering signal components of both the referenced processed RF signal and the second processed RF signal.